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THE ANDHRA PRADESH GAZETTE

PART–II EXTRAORDINARY

PUBLISHED BY AUTHORITY

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NOTIFICATIONS BY HEADS OF DEPARTMENTS, Etc.

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PUBLIC WORKS NOTIFICATIONS

ANDHRA PRADESH ELECTRICITY REGULATORY COMMISSION, HYDERABAD DRAFT APERC STATE ELECTRICITY GRID CODE REGULATION 2010.

Introduction

Section 86 (h) of the Electricity Act 03 require the state electricity regulatory commission to specify state grid code consistent with the grid code specified under clause(h) of sub section (1) of section 79 i.e Indian Electricity Grid Code specified by CERC.

The State Grid Code lays down the rules, guidelines and standards to be followed by various agencies and participants in the intra-State transmission system to plan, develop, maintain and operate the intra-State transmission system, a part of Southern Region Grid System, in the most efficient, reliable and economic manner, while facilitating a healthy competition in the generation and supply of electricity.

In view of that a draft regulation is herewith published for seeking comments/ suggestions from the interested parties. The interested parties can submit the comments/suggestions within 45 days of publication of this draft regulation.

Structure of APEGC

This State Grid Code contains the following parts, namely:

Part A: General - This part largely deals with the scope and application of these regulations and with Grid Coordination Committee;

Part B: Planning Code - This Code specifies the principles, procedures and criteria that shall be used in planning and development of intra-State transmission system;

Part C: Connection Conditions - Connection Conditions specify the minimum technical and design criteria that shall be complied with by a Transmission Licensee and User connected to or seeking connection to the intra-State transmission system;

Part D: Operating Code - This Code describes the conditions under which the State Load Despatch Centre shall operate the intra-State transmission system and under which Users shall operate their facilities, in so far as necessary to maintain the security and quality of supply and safe operation of the intra-State transmission system, under both normal and abnormal operating conditions;

Part E: Scheduling and Despatch Code - This Code deals with the provisions related to development of Scheduling and Despatch Code for the State of Andhra Pradesh;

Part F: Miscellaneous - This part deals with a number of miscellaneous aspects including compliance with the State Grid Code, Power to amend, power to remove difficulties and dispute resolution.

In exercise of the powers conferred by clause (zp) of section 181 read along with clause (h) of section 86 of the Electricity Act, 2003 (36 of 2003), the Andhra Pradesh Electricity Regulatory Commission hereby makes the following regulations, namely:

1. Short title, extent and commencement

1.1. These Regulations may be called the Andhra Pradesh Electricity Regulatory Commission (State Grid Code) Regulations, 2010.

1.2. These Regulations shall extend to the whole of the State of Andhra Pradesh.

1.3. These Regulations shall come into force with effect from the date of its publication in the Andhra Pradesh Gazette and shall remain in force unless amended, varied, altered or modified by the commission.

2. Definitions

2.1. In these Regulations unless the context otherwise requires:

(a) **"Act"** means the Electricity Act, 2003 (36 of 2003), including amendments thereto;

(b) **"Authority"** means the Central Electricity Authority referred to in sub-section (1) of Section 70 of the Act.

(c) **"Automatic Voltage Regulator"** means a continuously acting automatic excitation control system to control the voltage of a Generating Unit measured at the generator terminals;

(d) **"Black Start Procedure"** means procedure necessary to recover the grid from a partial or a total blackout;

(e) **"Commission"** means the Andhra Pradesh Electricity Regulatory Commission;

(f) **"Connection Agreement"** means an agreement setting out the terms relating to connection to and/or use of the intra-State transmission system;

(g) **"Connection Point"** means a point at which a User's or Transmission Licensee's Plant and/or Apparatus connects to the intra-State transmission system;

(h) **"Demand"** means the demand of Active Power in MW and Reactive Power in MVAR of electricity unless otherwise stated.

(i) **'df/dt Relay'** means a relay which operates when the rate of change of system frequency (over time) goes higher than a specified limit and initiates load shedding;

(j) **"Distribution System"** means the system of wires and associated facilities between the delivery points on the transmission lines or the generating station connection and the point of connection to the installation of the consumers;

(k) **"Disturbance Recorder"** means a device provided to record the behaviour of the pre-selected digital and analog values of the system parameters during an Event;

(l) **"Data Acquisition System"** means a device provided to record the sequence of operation in time, of the relays/equipments/system parameters at a location;

(m) **"Event"** means an unscheduled or unplanned occurrence in the intra-State transmission system including faults, incidents and breakdowns;

(n) **"Event Logger"** means a device provided to record the sequence of operation in time, of the relays/equipments at a location during an Event;

(o) **"Fault Locator"** means a device provided at the end of a transmission line to measure/indicate the distance at which a line fault may have occurred;

(p) **"Flexible Alternating Current Transmission (FACT)"** means facilities that enable power flows on A.C. lines to be regulated, to control loop flows, line loading etc.

(q) **"High Tension" or "HT"** means all voltages defined as "high" or "extra high" voltage under clause (av) of sub-rule (1) of Rule 2 of the Indian Electricity Rules, 1956 and corresponding voltage classifications as may be specified in accordance with clause (c) of sub-section (2) of Section 185 of the Act;

(r) **"Intra-State Transmission System"** (InSTS) means any system for conveyance of electricity by transmission lines within the area of the State and includes all transmission lines, sub-stations and associated equipment of transmission licensees in the State:

Provided that the definition of point of separation between a transmission system and distribution system and between a Generating Station and transmission system shall be guided by the provision of the Regulations notified by the Authority under clause (b) of Section 73 of the Act;

(s) **"Low Tension" or "LT"** means all voltages other than those defined as "high" or "extra high" voltage under clause (av) of sub-rule (1) of Rule 2 of the Indian Electricity Rules, 1956 and corresponding voltage classifications as may be specified in accordance with clause (c) of sub-section (2) of Section 185 of the Act;

(t) **"Maximum Continuous Rating"** means the normal rated full load MW output capacity of a Generating Unit which can be sustained on a continuous basis at specified conditions;

(u) **"Operation"** means a scheduled or planned action relating to the operation of a System;

(v) **"Single Line Diagram"** means diagrams which are a schematic representation of the HV/EHV apparatus and the connections to all external circuits at a Connection Point incorporating its numbering nomenclature and labeling;

(w) **"Site Common Drawing"** means drawings prepared for each Connection Point, which incorporates layout drawings, electrical layout drawings, common protection/control drawings and common service drawings;

(x) **"Spinning Reserve"** means generating capacity with some reserve margin, at standard rated frequency of 50 Hz, that is synchronized to the system and is ready to provide increased generation at short notice pursuant to dispatch instruction or instantaneously in response to a frequency drop;

(y) **"Static VAR Compensator"** means an electrical facility designed for the purpose of generating or absorbing Reactive Power;

(z) **"Sub-Load Despatch Centre"** means the offices and associated facilities of State Load Despatch Centre set up at any other place in Andhra Pradesh) for monitoring and control of the State Grid and includes any such offices and associated facilities set-up by State Load Despatch Centre in future;

(aa) **'Under Frequency Relay'** means a relay which operates when the system frequency falls below a specified limit and initiates load shedding;

(bb) **"User"** means persons, including in-State Generating Stations, Distribution Licensees Consumers of the Distribution Licensees directly connected to intra-State transmission system and persons availing of Open Access, and captive generating plants connected and operating in parallel with the Intra –State Transmission System, who are connected to and/or use the intra-State transmission system:

Provided that User for the purpose of Clause 38.4 to Clause 38.9 of these Regulations shall also include in-State Generating Stations which are connected to the Distribution System of a Distribution Licensee.

Words or expressions used herein and not defined shall have the meanings assigned to them under the Act

Application of other Codes etc.,

1. This code shall be read along with the, Andhra Pradesh Electricity Supply Code, and other relevant provisions of the Act, along with amendments thereon, rules and regulations made there under.
2. Where any of the provisions of this Code is found to be inconsistent with those of the Act, rules or regulations made there under, not withstanding such inconsistency, the remaining provisions of this Code shall remain operative.

3. Where any dispute arises as to the application or interpretation of any provisions of this Code, it shall be referred to the Commission whose decision shall be final and binding on the parties concerned.

4. Wherever extracts of the Electricity Act, 2003, are reproduced, any changes / amendments to the original Act shall automatically be deemed to be effective under this Code also

PART A: GENERAL

3. Scope of regulation and extent of application

3.1. These regulations shall apply to-

(i) every Transmission Licensee in the State including State Transmission Utility;

(ii) the State Load Despatch Centre;

(iii) Every User who is connected to and/or uses the intra-State transmission system:

(iv) All Users that connect with and/or utilize the InSTS are required to abide by the principles and procedures defined in this code in so far as they apply to that User.

Provided that the Commission may issue directions relieving any Transmission Licensee or User, either suo-motu or based on an application submitted by such Transmission Licensee or User, of their obligations to implement or comply with the State Grid Code to the extent as may be stipulated in the directions.

3.2. Transmission Licensee, forming part of the InSTS, and User ,having connection(s) to the InSTS, as on date of notification of these Regulations shall be given a maximum period of one year to comply with the following requirements under these Regulations:

(i) Entering into a connection agreement in accordance with clause 15;

(ii) Providing for protection systems in accordance with Clause 17.2 and 17.3;

(iii) Providing for communication facilities in accordance with Clause 18;

(iv) Providing for system recording instruments in accordance with Clause 19;

(v) Developing Single Line Diagrams in accordance with Clause 20.3.1;

(vi) Developing Site Common Drawings in accordance with Clause 20.4.2; and

(vii) Installation and Operation of meters in accordance with Metering Code developed as per clause 14.

3.3. All provisions related to Free Governor Action, shall be consistent with relevant provisions as provided in the IEGC specified by Central Electricity Regulatory Commission under clause (h) of Section 79 of the Act and amended from tiem to time.

3.4 **All Users** who are connected to and/ or use the InSTS, shall comply with the relevant regulations and Balancing & Settlement Code notified by the Commission from time to time "

4. State Grid Code

4.1. The Commission shall put up a copy of the State Grid Code on its Internet website and make available, through State Load Despatch Centre and State Transmission Utility, a copy of the applicable State Grid Code to any person requesting it, at a price not exceeding the reasonable cost of reproducing it.

4.2. The Commission shall make available a copy of the notified State Grid Code to the State Load Despatch Centre and State Transmission Utility for it to be put up on the Internet websites of State Load Despatch Centre and State Transmission Utility respectively.

5. Grid Coordination Committee

5.1. A Grid Coordination Committee shall be constituted by the State Load Dispatch Center with the consent of the commission within thirty (30) days from the date of notification of these Regulations.

5.2. The Grid Coordination Committee shall be responsible for the following matters, namely-

(i) facilitating the implementation of these Regulations and the rules and procedures developed under the provisions of these Regulations;

(ii) assessing and recommending remedial measures for issues that might arise during the course of implementation of provisions of these Regulations and the rules and procedures developed under the provisions of these Regulations;

(iii) review of the State Grid Code, in accordance with the provisions of the Act and these Regulations;

(iv) to assess and advice to the commission, the necessary amendments/changes required to be brought, in these regulations for smooth operation of the power sector and in the interest of overall compliance to the provisions of the Electricity Act 03 and;

(v) such other matters as may be directed by the Commission from time to time.

5.3. **The Grid Coordination Committee** shall comprise of the following members:

a) One member from State Transmission Utility;

b) One member of the State Load Despatch Centre;

c) One member to represent state generating companies and one from each class of generating companies in the State"

d) One member to represent the Transmission Licensees in the State, other than the State Transmission Utility;

e) One member each to represent the state-owned Distribution Licensees in the State;

f) One member to represent the privately-owned Distribution Licensees in the State;

g) One member to represent the Electricity Traders in the State;

h) One member to represent the Southern Region Load Despatch Centre; and

i) Such other persons as may be nominated by the Commission.

Provided that the member from State Transmission Utility shall be the Chairperson of the Committee:

Provided that the member from State Load Despatch Centre shall be the Convener of the Grid Coordination Committee:

Provided further that the State Transmission Utility shall, in coordination with State Load Despatch Centre, facilitate and manage the functioning of the Grid Coordination Committee.

5.4. The members of the Grid Coordination Committee shall be selected as follows:

(i) the concerned Director of State Transmission Utility, having the responsibility of looking after technical activities of State Transmission Utility shall be the member referred to in clause (a) of Regulation 5.3 above;

(ii) the member referred to in clause (b) of Regulation 5.3 above shall be the head of State Load Despatch Centre;

(iii) the members referred to in clauses (c), (d), (e), (f), (g) and (h) of Regulation 5.3 above shall be nominated by their respective organizations, which organizations will be selected in rotation from among all such organizations in the State. The term of each such member, selected in rotation, shall be one (1) year.

Provided that the members nominated by each of the organisation to the above Committee shall be holding a senior position in their respective organization.

6. Grid Code Review

6.1. State Grid Code shall be reviewed by the Grid Coordination Committee at least once in every twelve (12) months.

6.2. Upon completion of such review, the Grid Coordination Committee shall send a report to the State Transmission Utility providing information regarding: (a) outcome of the review; and (b) any proposed revisions to the State Grid Code.

6.3. The State Transmission Utility shall send the report, referred in Regulation 6.2, to the Commission.

7. Role & Responsibility of Various entities:

The state transmission utility (STU) and the State Load Dispatch Centre (SLDC) shall discharge such functions and responsibility as entrusted to them under the provisions of the act and any other regulations issued by the concerned authority in an independent and un biased manner.

In addition to that the State Load Dispatch Center (SLDC) shall also be responsible for " Operation of State UI pool account, State reactive energy account and Congestion Charge Account etc as may be provided in the relevant regulations.

Provided that in event of a State Load Despatch Centre being operated by the State Transmission Utility, as per first proviso of sub-section (2) of Section 31 of the Act, adequate autonomy shall be provided to the State Load Despatch Centre for it to able to discharge its functions in the above mentioned manner.

PART B: PLANNING CODE

8. Transmission System Planning

8.1. The State Transmission Utility shall publish on its Internet website the transmission system plan for the InSTS and shall also make the same available to any person upon request.

8.2. The transmission system plan shall cover a plan period of ten (10) years commencing from the financial year immediately following the year in which it is published: Provided that the transmission system plan shall be updated by the State Transmission Utility each year and published in the manner specified in clause 8.1 by the 30th day of September each year and shall cover a plan period of five (5) years commencing from the financial year immediately following the year in which it is published.

8.3. The form of the transmission system plan shall be provided by the State Transmission Utility.

8.4. The transmission system plan shall describe the plan for the InSTS and shall include the proposed intraState transmission schemes and system strengthening schemes for the benefit of all Users: Provided that the transmission system plan may include information related not only to intra-State transmission lines but also additional equipment including transformers, capacitors, reactors, Static VAR Compensators and Flexible Alternating Current Transmission Systems: Provided further that the transmission system plan shall also include information on progress achieved on the identified intra-State transmission schemes and system strengthening schemes.

8.5. The State Transmission Utility may, for the purpose of preparing the transmission system plan under this Regulation, seek such information as may be required by it, including generation capacity addition, system augmentation and long-term load forecast and all applications for open access: Provided that the Distribution Licensees shall have the primary responsibility for developing long term load forecasts for their respective license areas. The Distribution Licensee may be guided by applicable provisions related to load forecasting as provided in the guidelines for Load Forecasting & Resource Plans by the Commission. Provided also that the State Transmission Utility shall consider, but not be bound by, the information provided under this Regulation in preparing the transmission system plan.

8.6. The State Transmission Utility shall also consider the following for the purpose of preparing the transmission system plan under this Regulation - (i) Plans formulated by the Authority for the transmission system under the

(i) provisions of clause (a) of Section 73 of the Act;

(ii) Electric Power Survey of India report of the Authority;

(iii) Grid Standards specified by the Authority under clause (d) of Section 73 of the Act;

(iv) Transmission Plan formulated by Central Transmission Utility under the provisions of Grid Code specified by Central Electricity Regulatory Commission under clause (h) of Section 79 of the Act;

(v) Transmission Planning Criteria and Guidelines issued by the Authority;

(vi) Recommendations/ inputs, if any, of the Regional Power Committee

(vii) Reports on National Electricity Policy which are relevant for development of InSTS; and

(viii) Any other information/data source suggested by the Commission.

8.7. The State Transmission Utility shall, while submitting its application under subsection (1) of Section 64 of the Act, for determination tariff, to the Commission for approval, also submit therewith its investment plan based on the identified intra-State transmission schemes and system strengthening schemes projected in the transmission system plan.

8.8. The cost of the transmission system planning study undertaken in accordance with this Regulation shall be allowed in the determination of the charges of the State Transmission Utility under clause (b) of sub-section (1) of Section 62 of the Act.

9. Planning Criterion

9.1. The planning criterion shall be based on the security philosophy on which the InSTS has been planned. The security philosophy may be as per the Transmission Planning Criteria and other guidelines as given by the Authority.

Provided that State Transmission Utility shall carry out appropriate system studies while developing the transmission system plan.

9.2. The intra-State transmission system, as a general rule, shall be capable of withstanding and be secured against the following contingency outages without necessitating load shedding or rescheduling of generation during Steady State Operation:

(i) Outage of a 132kV D/C line or,

(ii) Outage of a 220kV D/C line or,

(iii) Outage of a 400kV S/C line or,

(iv) Outage of a single Interconnecting Transformer or,

(v) Outage of a one pole of HVDC Bipole line or,

(vi) Outage of a 765 kV S/C line.

<u>(vii) Ground Return Mode (GRM) operation of HVDC line</u>

<u>(viii) Power Demand Override (PDO) operation of a HVDC link.</u>

Provided that the above contingencies shall be considered assuming a pre-contingency system depletion (planned outage) of another 220kV D/C line or 400kV S/C line in another corridor and not emanating from the same substation.

9.3. All the Generating Units may operate within their reactive capability curves and the network voltage profile shall be maintained within voltage limits specified.

9.4 STU/ SLDC shall carry out demand forecast required for furnishing transmission requirement from ISTS for the purpose of calculation of transmission charge and loss sharing as per CERC regulations

SLDC shall declare and publish on its web site, ATC (Available transmission Capability) for intraSTS corridors as stipulated in the above regulations as well as CERC regulations on measures to mitigate Congestion in ISTS and regulations on LTA/ MTOA in ISTS.

9.4. The intra-State transmission system shall be capable of withstanding the loss of most severe single infeed without loss of stability.

9.5. Any one of the events defined in the Regulation 9.2 above shall not cause: Loss of supply; Prolonged operation of the system frequency below and above specified limits; Unacceptable high or low voltage; System instability; Unacceptable overloading of InSTS elements.

9.6. In all substations (132kV and above), except HVDC, suitable number and capacity of transformers shall be provided to have adequate redundancy required to maintain firm capacity at the substation. In HVDC substations, at least one spare converter/inverter transformer shall be kept ready to use at any time. Explanation – for the purpose of Regulation 9.6, the term firm capacity shall mean the minimum transformation capacity available at the substation in case of outage of any one transformer.

9.7. State Transmission Utility shall carry out planning studies for Reactive Power compensation of InSTS.

10. Planning Data

10.1. Transmission Licensees and all Users including the distribution licensees have to supply following types of data to the State Transmission Utility for purpose of developing the transmission plan: Standard Planning Data; Detailed Planning Data

10.2. Standard Planning Data

10.2.1. Standard Planning Data shall consist of details which are expected to be normally sufficient for the State Transmission Utility to investigate the impact on the InSTS due to User/Transmission Licensee development.

10.2.2. Transmission Licensees and Users shall provide the following data to the State Transmission Utility from time to time in the standard formats provided by State Transmission Utility:

(a) Preliminary project planning data;

(b) Committed project planning data; and

(c) Connected planning data.

Provided that the State Transmission Utility shall provide a date for submission of information in the said formats, after providing reasonable time to Transmission Licensees and Users:

Provided that the State Transmission Utility shall develop standard formats, for submission of above mentioned data, within one (1) month from notification of these regulations and make the same available on its Internet website:

Provided also that the State Transmission Utility shall be guided by the formats, developed for submission of above mentioned data, under the provisions of IEGC specified by Central Electricity Regulatory Commission under clause (h) of Section 79 of the Act.

10.3. Detailed Planning Data

10.3.1. Detailed Planning Data shall consist of additional, more detailed data not normally expected to be required by State Transmission Utility to assess the impact of User/Transmission Licensee development on the InSTS.

10.3.2. Detailed Planning Data shall be furnished by the Users and Transmission Licensees as and when requested by the State Transmission Utility.

PART C: CONNECTION CODE

11. Connection Standard

"Users connected to or seeking connection to InSTS shall comply with CEA (Technical Standards for connectivity of grid) regulations, 2007 and as per the APERC regulations for grant of connectivity notified from time to time. Till such time of such regulations notified by APERC, CERC (grant of connectivity, LT OA, MT OA) regulations to the extent applicable"

In addition, Connection code shall **also cover the technical standards for connection of wind and solar plants** which were not covered in CEA (technical standards for connectivity of grid) regulations, 2007

12. Safety Standard

The applicable safety requirements for construction, operation and maintenance of electrical plants and electric lines shall be as per the Indian Electricity Rules 1956 or the standards notified by the Authority under clause (c) of Section 73 of the Act:

13. Application for connection

13.1. Application for establishing new arrangement or modifying existing arrangement of connection to and/or use of the InSTS shall be submitted by the concerned Transmission Licensee or User to the State Transmission Utility:

Provided that the standard format for application mentioned in the Regulation 13.1 shall be developed by State Transmission Utility and shall be made available at its Internet website within two (2) months of notification of these Regulations.

13.2. The application mentioned in clause 13.1 shall include the following details:

(a) Report stating the purpose of the proposed connection and/or modification, transmission licensee to whose system connection is proposed, description of apparatus to be connected or modification of the apparatus already connected and beneficiaries of the proposed connection;

(b) Construction schedule and target completion date; and

(c) Confirmation that the Transmission Licensee or the User shall abide by the provisions of State Grid Code, Indian Electricity Rules and various standards including Grid Connectivity Standards made pursuant to the Act.

13.3. The State Transmission Utility shall forward a copy of the application to the Transmission Licensee in whose system the connection is being sought, to State Load Despatch Centre and to every Transmission Licensee within the State whose Transmission System is likely to be affected by such application.

13.4. The State Transmission Utility or Transmission Licensee may carry out the power system studies as considered appropriate before allowing any new connection.

13.5. The State Transmission Utility shall, within Thirty (30) days, from the receipt of an application under clause 13.1 and after considering all suggestions and comments received by the parties identified under clause 13.3

(a) accept the application with such modification or such conditions as may be specified by the State Transmission Utility;

(b) reject the application for reasons to be recorded in writing if such application is not in accordance with the provisions of these Regulations.

13.6. In case of acceptance of an application as per sub-section (a) of Regulation 13.5, the State Transmission Utility shall make a formal offer to the applicant:

Provided that the State Transmission Utility shall forward a copy of the offer to the Appropriate Transmission Licensee.

13.7. The voltage level at which the applicant is offered to be connected to the InSTS shall be governed by the standards notified by the Authority and prevailing guidelines adopted by the State Transmission Utility.

13.8. The applicant and the Appropriate Transmission Licensee, in whose system the connection is being sought, shall finalise a Connection Agreement on acceptance of the offer by the applicant. Provided that the State Transmission Utility shall be provided with a copy of the Connection Agreement: Provided further the State Load Despatch Centre shall be provided with a copy of the above mentioned Connection Agreement by the State Transmission Utility on request.

13.9. The State Transmission Utility shall, upon compliance of the required conditions by the concerned Transmission Licensee/ User, shall notify the concerned Transmission Licensee/User that it can be connected to the InSTS.\

14. **Metering Requriement:**

14.1 Provided that the metering requirements shall be strictly in accordance with the regulations specified by the Authority under Section 55 of the Act with regard to installation & operation of Meters.

14.2 If the existing metering is of better accuracy than the one specified in 14.1, the same may be used without alteration.

14.3 Consumer directly connected to the Inter-State Transmission System or Intra-State Transmission System who is eligible for open access facility as per the relevant regulations issued by the State Commission, the location of the consumer meter shall be at a the nearest substation of the licensee.

14.4 In case the existing Metering System is not complying with the CEA standards, all Licensees and Generating Companies shall comply with such standards within a peiord of 6 months. The Commission reserves the right to extend the above 6 month time period based on the submission made by the licensees to its satisfaction.

15. Connection Agreement

15.1. Connection Agreement shall include, as appropriate, within its terms and conditions, the following information relating to the connection of the User or Transmission Licensee to the InSTS: (a) a condition requiring both parties to comply with the State Grid Code, Indian Electricity Grid Code specified by CERC and all other regulations concerning Standards of Grid Connectivity, Safety and security notified by the Authority (b) details of connection, technical requirements and commercial arrangements; (c) details of any capital expenditure arising from necessary reinforcement or extension of the system, data communication etc and demarcation of the same between the concerned parties; (d) Site Responsibility Schedule; (e) General philosophy and guidelines on protection; (f) Protection systems; (g) System recording instruments; (h) Communication facilities; and (i) Any other information considered appropriate by the State Transmission Utility or the Commission.

15.2 "State Transmission Utility shall develop a model Connection Agreement within one month of notification of this regulation and submit to the Commission for approval.

Upon notification, the same shall be signed by the users within 3 months.

SLDC shall inform the progress of new projects inter-connecting with ISTS in advance to enable CTU to coordinate installation of meters, SCADA data integration, speech and protection etc."

16. Grid Parameter Variations

16.1. General

16.1.1. Transmission Licensees and Users shall ensure that Plant and Apparatus requiring service from or providing service to the InSTS is of such design and construction that satisfactory operation of such Plant and Apparatus will not be prevented by variation in instantaneous values of system frequency and voltage from their nominal values and that such Plant and Apparatus shall not induce any adverse affect on the InSTS.

16.2. Frequency Variation

16.2.1. Rated frequency of the system shall be 50.0 Hz and shall normally be controlled within the limits in conformity with IEGC as amended from time to time.

16.3. Voltage Variation

16.3.1. The variations of voltage may not be more than the voltage range specified in the regulations framed by the Commission

17. Equipment at Connection Points

17.1. Sub-station Equipment

17.1.1. All Extra High Voltage (EHV) sub-station equipments shall comply with Bureau of Indian Standards/ International Electro technical Commission/prevailing Code of practice.

17.1.2. All equipment shall be designed, manufactured and tested and certified in accordance with the quality assurance requirements as per the standards of International Electro technical Commission or the Bureau of Indian Standards.

17.1.3. Each connection between a User and InSTS shall be controlled by a circuit breaker capable of interrupting, at the connection point, at least the short circuit current as advised by State Transmission Utility in the specific Connection Agreement.

17.2. Fault Clearance Times

17.2.1. The fault clearance time for primary protection schemes, when all equipments operate correctly, for a three phase fault (close to the bus-bars) on Users' equipment directly connected to InSTS and for a three phase fault (close to the bus-bars) on InSTS connected to Users' equipment, shall not be more than:

(a) 100 milli seconds for 800 kV class & 400 kV

(b) 160 milli seconds for 220 kV & 132 kV/110kV

17.2.2. Back-up protection shall be provided for required isolation/protection in the event of failure of the primary protection systems provided to meet the above fault clearance time requirements. If a Generating Unit is connected to the InSTS directly, it shall be capable of withstanding, until clearing of the fault by back-up protection on the InSTS side.

17.3. Protection

17.3.1. Protection Systems shall be provided by all Transmission Licensees and Users to isolate the faulty equipments and protect the other components against all types of faults, internal/external to them, within specified fault clearance time with reliability, selectivity and sensitivity:

Provided that all Users or Transmission Licensees shall provide protection systems as specified in the Connection Agreement.

17.3.2. Relay setting coordination shall be done at state level in coordination with the state transmission utility and with regional power committee if required.

17.3.3 All 220kV and above stations shall have bus bar protection, overflux, under

voltage over voltage relays and any other protection recommended by Regional

PCC of SRPC.

17.4. Reactive Power Compensation

17.4.1. "Reactive Power compensation and/or other facilities shall be provided by Users, as far as possible, in the areas prone to low or high voltages systems thereby avoiding the need for exchange of Reactive Power to/ from the IntraSTS and to maintain the IntraSTS voltage within the specified range at all times. Their healthiness and operation as per real time requirement shall be ensured by the user or STU."

17.4.2. Line Reactors may be provided to control temporary over voltage within the limits as set out in connection agreements.

17.4.3. The additional reactive compensation to be provided by the User shall be indicated by State Transmission Utility in the Connection Agreement for implementation.

17.4.4. Users shall endeavour to minimize the Reactive Power drawal at an interchange point when the voltage at that point is below 97% of rated voltage, and shall not inject Reactive Power when the voltage is above 103% of rated voltage. Interconnecting Transformer taps at the respective drawal points may be changed

to control the Reactive Power interchange as per a User's request to the State Load Despatch Centre, but only at reasonable intervals.

17.4.5. Switching in/out of all 400 kV bus and line Reactors throughout the grid shall be carried out as per instructions of State Load Despatch Centre. Tap changing on all 400/220 kV Interconnecting Transformers shall also be done as per the instructions of State Load Despatch Centre only.

17.4.6. All hydro stations, CCGT and **liquid fuel stations shall compulsorily have Black start facilities.** All stations at 220kV and above shall have synchronizing facilities."

18. Communication Facilities

18.1. All Users and Transmission Licensees including the State Transmission Utility shall provide the required facilities at their respective ends as specified in the Connection Agreement: Provided that the equipments/ devices for communication and data exchange shall be provided considering the guidelines of State Load Despatch Centre, the interface requirements and other such guidelines/specifications as applicable.

18.2. Reliable and efficient speech and data communication systems shall be provided to the SLDC to facilitate necessary communication and data exchange, and supervision/control of the State Grid by the State Load Despatch Centre, under normal and abnormal conditions.

18.3. It is the responsibility of the STU & Transmission Licensees, Users including the Distribution Licensees to provide the necessary system operation parameters as specified by the SLDC on real time / online basis making use of the state of the art technology (Data Acquisition & communication) for effective operation of the state grid in coordination with the regional grid.

18.4. SLDC shall ensure reliable communication channel with RLDC. All Sub LDCs and SLDC shall install and maintain Voice logging systems for recording telephonic instructions and information.

19. System Recording Instruments

19.1. Recording instruments such as Data Acquisition System/Disturbance Recorder/Event Logger/Fault Locator (including time synchronization equipment) shall be provided in the InSTS for recording of dynamic performance of the system

19.2. All Users and Transmission Licensees shall provide all the requisite recording instruments as specified in the connection agreement in accordance with the agreed time schedule.

19.3. Open Access generators of above 2 MW shall provide online data to the SLDC by installing suitable SCADA facility at their cost.

20. Responsibilities for operational safety

20.1. Transmission Licensees and the Users shall be responsible for safety as indicated in Site Responsibility Schedules for each connection point.

20.2. Site Responsibility Schedule

20.2.1. Site Responsibility Schedule shall be produced by the concerned Transmission Licensee and the User detailing the ownership responsibilities of each, before execution of the project or connection, including safety responsibilities.

20.2.2. The Site Responsibility Schedule shall be developed by the concerned Transmission Licensee pursuant to the relevant Connection Agreement and shall state the following for each item of plant and apparatus installed at the Connection point:

(i) Ownership of the Plant/Apparatus;

(ii) Responsibility for control of the Plant/Apparatus;

(iii) Responsibility for operation of the Plant/Apparatus;

(iv) Responsibility for maintenance of the Plant/Apparatus; and

(v) Responsibility for all matters relating to safety of any persons at the connection point.

20.2.3. The format, principles and basic procedure to be used in the preparation of Site Responsibility Schedules shall be formulated by State Transmission Utility within three (3) months of notification of these regulations and shall be provided to each User and Transmission Licensee for compliance: Provided that the State Transmission Utility shall put up the information related to above mentioned format, principles and procedures on its Internet Website.

20.3. Single Line Diagrams

20.3.1. Single Line Diagram shall be furnished for each connection point by the connected User or Transmission Licensee to the State Transmission Utility: Provided that the State Transmission Utility shall furnish the above information to the State Load Despatch Centre on request.

20.3.2. Single Line Diagram shall include all High Tension (HT) connected equipment and the connections to all external circuits and incorporate numbering, nomenclature and labeling.

20.3.3. In the event of a proposal to change any equipment, the concerned User or Transmission Licensee shall intimate the necessary changes to State Transmission Utility and to all concerned. Single Line Diagram shall be updated appropriately by the concerned Users or Transmission Licensee and a copy of the same shall be provided to the State Transmission Utility.

20.4. Site Common Drawings

20.4.1. Site Common Drawings shall be prepared for each Connection Point and will include the following information: (i) Site Layout; (ii) Electrical Layout; (iii) Details of Protection/Control; and (iv) Common Services Drawings.

20.4.2. Detailed drawings shall be prepared by Transmission Licensee and User in respect of their system/facility at each Connection Point and copies of the same shall be made available to concerned User and Transmission Licensee respectively.

20.4.3. In case of any changes in the Site Common Drawings that are found necessary by Transmission Licensee or User in respect of their system/facility at the Connection Point, the details of such changes shall be furnished to the other party as soon as possible.

21. Access at Connection Site

21.1. The Transmission Licensee or User owning the Connection Site shall provide reasonable access and other required facilities to another Transmission Licensee or User whose equipment is proposed to be installed / installed at the Connection Site for installation, operation, maintenance, etc.

21.2. Written procedures and agreements shall be developed between Transmission Licensees and Users to ensure that mandatory access is available to the concerned Transmission Licensee or User at the same time safeguarding the interests of Transmission Licensee and User at the connection site.

PART D: OPERATING CODE

22. Operating conditions

22.1. State Load Despatch Centre shall supervise the overall operation of the intra-State transmission system.

22.2. State Load Despatch Centre shall develop, document and maintain detailed operating procedures for managing the State Grid. These internal operating procedures shall include the following:

(i) Black start procedures;

(ii) Load shedding procedures;

(iii) Islanding procedures; and

(iv) Any other procedures considered appropriate by the State Load Despatch Centre:

Provided that such procedures shall be developed in consultation with Regional Power Committee and Regional Load Despatch Centre:

Provided further that such procedures shall be submitted, within three (3) months, to the Commission for approval.

22.3. The control rooms of the State Load Despatch Centre including Sub-Load Despatch Centres, Power Plants, substations of 132 kV and above and any other control centres of Transmission Licensees and Users shall be manned round-the-clock by qualified and adequately trained personnel. All personnel at SLDC and Sub LDC shall under go manpower certification system as per norms set by **Government of India”**

23. System security aspects

23.1. All Users and Transmission Licensees shall endeavour to operate their respective power systems and power stations in synchronism with each other at all times, such that the entire system within the State operates as one synchronised system.

23.2. No part of the State Grid shall be deliberately isolated from the rest of the InSTS except

(i) under an emergency, and conditions in which such isolation will prevent a total grid collapse and/ or will enable early restoration of power supply;

(ii) when serious damage to a costly equipment is imminent and such isolation will prevent it;

(iii) when such isolation is specifically instructed by the State Load Despatch Centre.

23.3. Complete synchronism of the State Grid shall be restored as soon as the conditions again permit it. The restoration process shall be supervised by State Load Despatch Centre as per the operating procedures separately formulated.

23.4. No important element of the State Grid shall be deliberately opened or removed from service at any time, except when specifically instructed by State Load Despatch Centre or with specific and prior clearance of State Load Despatch Centre. The list of such important grid elements on which the above stipulations apply shall be prepared by the State Load Despatch Centre in consultation with the Transmission Licensees and Users and shall be available at the State Load Despatch Centre.

23.5. In case of opening/removal of any important element of the State Grid under an emergency situation, the same shall be communicated to State Load Despatch Centre at the earliest possible time after the event.

23.6. Any tripping, whether manual or automatic, of any of the elements of the State Grid, referred in Regulation 22.4, shall be precisely intimated by the concerned Transmission Licensee or User to the State Load Despatch Centre at the earliest. The reason, to the extent determined, and the likely time of restoration shall also be intimated. All reasonable attempts shall be made for the elements' restoration as soon as possible.

23.7. A Generating Unit shall be capable of continuously supplying its normal rated active/reactive output at the rated system frequency and voltage, subject to the design limitations specified by the manufacturer. When instructed by SLDC, the unit shall maximize the reactive power generation/ absorption as per its capability curve to the extent possible.

23.8. A Generating Unit shall be provided with an Automatic Voltage Regulator, protective and safety devices, as set out in Connection Agreement.

23.9. Each Generating Unit shall be fitted with a turbine speed governor having an overall droop characteristic within the range of 3% to 6% and such turbine speed governor shall always be in service:

Provided that if any generating unit of over fifty (50) MW size is required to be operated without its governor in normal operation, the State Load Despatch Centre shall be immediately advised about the reason and duration of such operation.

23.10. Facilities available with/in load limiters, Automatic Turbine Run-up System, Turbine supervisory control, coordinated control system, etc., shall not be used to suppress the normal governor action in any manner. No dead bands and/or time delays shall be deliberately introduced.

23.11. Each Generating Unit shall be capable of instantaneously increasing output by 5%, when the frequency falls, subject to limit of 105% of Maximum Continuous Rating. Ramping back to the previous generation level, in case the increased output level cannot be sustained, shall not be faster than 1% per minute:

Provided that any generating unit of over Fifty (50) MW size not complying with the above requirements, shall be kept in operation (synchronized with the State Grid) only after obtaining the permission of State Load Despatch Centre: Provided also that User can make up the corresponding short fall in spinning reserve by maintaining an extra spinning reserve on the other generating units of the User.

23.12. The recommended rate for changing the governor setting, i.e., supplementary control for increasing or decreasing the output (generation level) for all generating units, irrespective of their type and size, would be one (1.0) per cent per minute or as per manufacturer's limits. However, if frequency falls below 49.5 Hz, all partly loaded generating units shall pick up additional load at a faster rate, according to their capability.

23.13. Except under an emergency, or to prevent an imminent damage to costly equipment, no User shall suddenly reduce his generating unit output by more than a limit as specified by the State Load Despatch Centre, without prior intimation to and consent of the State Load Despatch Centre, particularly when frequency is falling or is below 49.0Hz. Similarly, no User shall cause a sudden increase in its load by more than a limit as specified by the State Load Despatch Centre, without prior intimation to and consent of the State Load Despatch Centre.

23.14. All generating units shall normally have their Automatic Voltage Regulators in operation, with appropriate settings.

Provided that in case a generating unit of over fifty (50) MW is required to be operated without its Automatic Voltage Regulator in service, the State Load Despatch Centre shall be immediately intimated about the reason and duration, and its permission be obtained.

23.15. Power System Stabilizers in Automatic Voltage Regulators of generating units, wherever provided, shall be properly tuned by the respective generating unit owner as per a plan prepared for the purpose by the State Transmission Utility from time to time. State Transmission Utility will be allowed to carry out checking of Power System Stabilizer and further tuning it, wherever considered necessary.

23.16. Provision of protections and relay settings shall be coordinated periodically throughout the State grid, as per a plan to be separately finalized by the Protection Committee of the Regional Electricity Board/Regional Power Committee.

23.17. State Load Despatch Centre, in coordination with Regional Load Despatch Centre, Users and Transmission Licensees shall make all possible efforts to ensure that the grid frequency always remains within the frequency band specified by IEGC from time to time, the frequency range within which steam turbines conforming to the IEC specifications can safely operate continuously.

23.18. Users and Transmission Licensees shall provide automatic under-frequency and df/dt relay-based load shedding/islanding schemes in their respective systems, wherever applicable, to arrest frequency decline that could result in a collapse/disintegration of the State grid, as per the plan separately finalized by the Regional Electricity Board/Regional Power Committee and shall ensure its effective application to prevent cascade tripping of generating units in case of any contingency.

23.19. Users and Transmission Licensees shall ensure that the under-frequency and df/dt relay-based load shedding/ islanding schemes, mentioned in Regulation 22.18 are always functional: Provided that the relays may be temporarily kept out of service, in extreme contingencies, with prior consent of State Load Despatch Centre.

23.20. State Transmission Utility shall carry out periodic inspection of the under frequency relays and produce the report to State Load Despatch Centre. State Load Despatch Centre shall maintain the record of under frequency relay and/or df/dt relay operation.

23.21. Users and Transmission Licensees shall facilitate identification, installation and commissioning of System Protection Schemes (including inter-tripping and run-back), as finalized by Regional Electricity Board/ Regional Power Committee, in the power system to protect against situations including voltage collapse and cascading: Provided that such schemes shall be prepared by State Transmission Utility after due consultations with State Load Despatch Centre, Users and other Transmission Licensees.

23.22. Each User and Transmission Licensee shall provide adequate and reliable communication facility internally and with State Load Despatch Centre, other Users and other Transmission Licensees to ensure exchange of data/information necessary to maintain reliability and security of the grid. Wherever possible, redundancy and alternate path shall be maintained for communication along important routes, e.g., SLDC to Users.

23.23. User and Transmission Licensee shall send the requested information/data including disturbance recorder/ sequential event recorder output etc to State Load Despatch Centre for purpose of analysis of any grid disturbance/event. No User or Transmission Licensee shall block any data/information required by the State Load Despatch Centre for maintaining reliability and security of the State or Regional Grid and for analysis of an event.

23.24. Hydro generators having capability to operate in condenser mode are required to do so under instructions from SLDC

23.25. Hydro generators having capability to operate in Pump mode are required to do so under instructions from SLDC

23.26. State Load Despatch Centre, Users and Transmission Licensees shall make all possible efforts to ensure that the grid voltage always remains within the following operating range: Voltage -

RMS Voltage (KV)

400	420	360
220	245	200
132	145	120

24. Demand forecast

24.1. The State Load Despatch Centre shall set out the responsibilities for short term (one day to 52 weeks) demand estimation of active power as well as reactive power. It shall also provide for procedures as well as timelines to be followed for exchange of information between concerned entities for arriving at these estimates/forecasts: Provided that the State Load Despatch Centre shall refer to the demand forecast considered by the State Transmission Utility while developing the transmission system Plan under Regulation 8 of these Regulations.

24.2. The demand estimation shall cover the time scales as applicable for operational purposes. The time scales should be decided after giving due considerations to the requirements under other existing regulations for furnishing demand forecast related information.

24.3. The STU shall conduct monthly system study of the network on the peak demand reached to facilitate system improvement of the network. Similar studies shall be conducted for reactive power compensation only to consider enhancing by redeployment of reactive sources on a quarterly basis.

25. Manual Demand Disconnection

25.1. "Users shall generally endevour to restrict their actual drawal within their respective target drawal schedules issued by the State Load Despatch Centre. The SLDC at any point of time, shall direct the concerned Users to effect manual load shedding to curtail over-drawal, if it feels that the grid operation and security is endangered. Frequency as per IEGC, as amended from time to time shall be maintained.

Provided further that such directions shall include the time period or the system conditions until which the issued directions shall be applicable."

25.2. In case of certain contingencies and/or threat to system security, the State Load Despatch Centre may direct Users to decrease their drawals and such Users shall act upon such directions immediately:

Provided that if such contingency is caused by the intra state Open Access user (Generator) , the State Load Despatch Centre may direct the concerned drawl entity of such open access transaction to decrease their drawals and such drawl entities shall act up on such directions immediately;

Provided that any non-compliance with such directions shall be dealt with as per provisions of clause 38 of this Regulation.

25.3. Users shall make arrangements that will enable manual disconnection to take place as instructed by the State Load Despatch Centre.

26. Reports

26.1. A weekly report shall be put up by State Load Despatch Centre on its Internet website to inform about the performance of the State Grid for the previous week. The weekly report shall contain the following: (i) Frequency profile; (ii) Voltage profile of selected substations; (iii) Demand and Supply Situation; (iv) Major Generation and Transmission Outages; (v) Transmission Constraints; and (vi) Instances of persistent / significant non-compliance of State Grid Code. Provided that the weekly report shall be available on the Internet website of State Load Despatch Centre for at least twelve (12) weeks: Provided further that a copy such report shall be made available to any User or Transmission Licensee on request.

26.2. The State Load Despatch Centre shall prepare a quarterly report which shall bring out the system constraints, reasons for not meeting the requirements, if any, of security standards and quality of service, along with details of various actions taken by different Users/Transmission Licensees, and the Users/Transmission Licensees responsible for causing the constraints.

27. Operational Liaison

27.1. Operations and events on the State Grid

27.1.1. State Load Despatch Centre shall, before any Operation is carried out on State grid, inform each User and Transmission Licensee, whose system may or will experience an operational effect, and give details of the operation to be carried out.

27.1.2. State Load Despatch Centre shall, immediately following an event on State grid, inform each User and Transmission Licensee, whose system may or will experience an operational effect following the event, and give details of what happened in the event but need not give the reasons for the same.

27.2. Operations and events on Users' or Transmission Licensees' System

27.2.1. Before any Operation is carried out on system of a User or a Transmission Licensee, the concerned User or Transmission Licensee shall inform the State Load Despatch Centre, in case the State Grid may or will, experience an operational effect, and shall give details of the operation to be carried out.

27.2.2. User or a Transmission Licensee shall, immediately following an event on its system, inform the State Load Despatch Centre, in case the State Grid may or will, experience an operational effect following the event, and give details of what happened in the event but need not give the reasons for the same.

28. Outage planning and coordination

28.1. All Users and Transmission Licensees shall provide State Load Despatch Centre with their proposed outage programmes in writing for the next financial year by 31st December of each year. These shall contain identification of each Generating Unit/Transmission Line/Interconnecting Transformer for which outage is being planned, reasons for outage, the preferred date for each outage and its duration and where there is flexibility, the earliest start date and latest finishing date.

28.2. State Load Despatch Centre shall come out with a draft outage programme for the next financial year by 31st of January of each commencing financial year for the State Grid:

Provided that outage plan shall be developed after giving due considerations to system security and reliability and shall be developed such that the extent of unmet system demand on account of such a plan is kept to a minimum:

Provided further that in case of hydro generating stations such a plan shall also endeavor to maximize the utilization of water for purpose of power generation subject to applicable constraints related to alternate use of such water.

28.3. Transmission Outage Planning shall be harmonized with Generation Outage Planning and Distribution System Outage Planning shall be harmonized with Generation and Transmission Outage Planning.

28.4. The final outage plan shall be intimated to all Users and Transmission Licensee latest by 31st January each year:

Provided that the State Load Despatch Centre shall finalise the outage plan in consultation with the Users and Transmission Licensee:

Provided further that the above annual outage plan shall be reviewed by State Load Despatch Centre on monthly basis in coordination with all parties concerned, and adjustments made wherever found to be necessary.

28.5. Each User or Transmission Licensee shall, at least two (2) weeks prior to availing an outage as per the planned schedule, inform the State Load Despatch Centre about the same and obtain prior approval from State Load Despatch Centre for the same.

28.6. The State Load Despatch Centre shall have the authority to defer any planned outage in case of occurrence of following events:

(i) major grid disturbances (e.g. total black out);

(ii) system isolation;

(iii) any other event in the system that may have an adverse impact on the system security by the proposed outage.

Provided that the State Load Despatch Centre shall inform about the revised outage plan, with appropriate reasons for revisions in the outage plan, as soon as possible.

28.7. In case of emergency in the system, which may include events like loss of generation, break down of transmission line, grid disturbances and system isolation, the State Load Despatch Centre may appropriately review the situation before clearance of the planned outage.

29. Recovery Procedures

29.1. Detailed plans and procedures for restoration after partial/total blackout shall be finalized by State Load Despatch Centre in coordination with the Regional Load Despatch Centre, Users and Transmission Licensees.

29.2. The procedure shall be reviewed, confirmed and/or revised once every subsequent year. Training programs including workshops and simulation exercises of the procedure for different sub-systems shall be carried out by the State Load Despatch Centre, in coordination and consultation with Users and Transmission Licensees, at least once every six months.

29.3. List of generating stations with black start facility, inter-State/inter regional ties, synchronizing points and essential loads to be restored on priority, shall be prepared by and be available with State Load Despatch Centre.

29.4. State Load Despatch Centre shall be authorized during the restoration process following a black out, to operate with reduced security standards for voltage and frequency as necessary in order to achieve the fastest possible recovery of the grid.

29.5. All communication channels required for restoration process shall be used for operational communication only, till grid normalcy is restored.

30. Event information

30.1. Reportable Events

30.1.1. Any of the following events shall require reporting by User/Transmission Licensee or State Load Despatch Centre as the case may be:

(i) Violation of security standards;

(ii) Grid indiscipline;

(iii) Non-compliance of State Load Despatch Centre's instructions;

(iv) System islanding/system split;

(v) Black out/partial system black out;

(vi) Protection failure on any element of intra-State transmission system;

(vii) Power system instability; and

(viii) Tripping of any element of the State Grid.

30.2. Reporting Procedure

30.2.1. User or Transmission Licensee, after having initially reported about the event orally to the State Load Despatch Centre, shall provide a written report within two (2) weeks of the occurrence of the event to the State Load Despatch Centre in accordance with Regulation 29.2.3.

30.2.2. State Load Despatch Centre, after having initially reported about the event orally to the Users/Transmission Licensees, shall provide a written report within two (2) weeks of the occurrence of the event to the concerned Users/Transmission Licensees in accordance with Regulation 29.2.3.

30.2.3. A written report shall be sent to State Load Despatch Centre or Users/Transmission Licensees, as the case may be, and shall confirm the oral notification together with the following details of the event:

(i) Time and date of event;

(ii) Location;

(iii) Plant and/or Equipment directly involved;

(iv) Description and cause of event;

(v) Antecedent conditions;

(vi) Demand and/or Generation (in MW) interrupted and duration of interruption;

(vii) All relevant system data including copies of records of all recording instruments including Disturbance Recorder, Event Logger and Data Acquisition System;

(viii) Sequence of trippings with time;

(ix) Details of Relay Flags; and

(x) Remedial measures.

30.2.4. Events affecting a generation capacity or a load of more than 1000MW shall immediately be reported in writing to the Commission by the State Load Despatch Centre, Transmission Licensee or User, as the case may be: Provided that a summary document including brief detail of the event, extent and probable causes of the event shall be sent across to the Commission within 48 hours of occurrence of such event.

31. State Load Despatch Centre and Sub-Load Despatch Centres

31.1. Objectives of State Load Despatch Centre

Operation and management of intra-State transmission system is an important and complex activity which regularly requires addressing a number of complex, and often conflicting, issues and a State Load Despatch Centre plays the most important role in this.

The functions of State Load Despatch Centre have been articulated in Electricity Act 2003. However, it is important to define the underlying objectives of State Load Despatch Centre, which are sought to be achieved through these functions. These objectives of State Load Despatch Centre have been defined as under:

§ To ensure reliable power supply, within available generation capacity, to all consumers located at all points of the system;

§ **To ensure active/ reactive power drawl from central grid as per IEGC, and other regulations of CERC**

§ To ensure frequency and voltage conditions within permissible limits;

§ To supply power in most economic manner possible; and

§ To limit the duration and extent of repercussions due to faults and restore normal functioning of the network as soon as possible

31.2 Procedures and processes developed by State Load Despatch Centre, in discharge of its functions under the provisions these Regulations, shall clearly provide for the following aspects, wherever applicable:

(i) Roles and Responsibilities of Sub-Load Despatch Centres;

(ii) Communication facilities between the State Load Despatch Centre and Sub- Load Despatch Centres;

(iii) Information flow between State Load Despatch Centre and Sub-Load Despatch Centres; and

(iv) Any other aspect considered appropriate by the State Load Despatch Centre or the Commission.

32. State Load Despatch Centre, Transmission Licensees and Users

32.1. Procedures and processes developed by State Load Despatch Centre, in discharge of its functions under the provisions these Regulations, shall clearly provide for the following aspects, wherever applicable:

(i) Roles and Responsibilities of State Load Despatch Centre, Users and Transmission Licensees;

(ii) Information flow between State Load Despatch Centre, Users and Transmission Licensees; and

(iii) Any other aspect considered appropriate by the State Load Despatch Centre or the Commission.

PART E: SCHEDULING AND DESPATCH CODE

33. This code deals with the procedures to be adopted for scheduling of the intra – state generating stations(InSGS) , net drawls of Distribution Licensees and , net injection / drawals of concerned intra state open access entities on a daily basis with the modality of the flow of information between the RLDC/ SLDC/Distribution Licensees & Open Access entities. The procedure for submission of capacity declaration by each InSGS and submission of requisition / drawal schedule by the distribution licensee and open access users is intended to enable SLDC to prepare the despatch schedule for each ISGS and drawal schedule for each state entity. It also provides methodology of issuing real time dispatch/drawal instructions and rescheduling, if required, to state entities along with the commercial arrangement for the deviations from schedules. The provisions contained in this chapter are without prejudice to the powers conferred on SLDC under sections 31 and 32 of the Electricity Act, 2003.

34. To maintain harmony and consistency with the scheduling and dispatch procedure of inter state transactions, as the power system of the state is operating in synchronism with the regional power system, for the purpose of this section, scheduling & dispatch procedure specified by the CERC in the Indian Electricity

Grid Code (IEGC) issued and amended from time to time, under clause (h) of Section 79 of the Act,shall be followed.

35. The Intra State Generating Stations (InSTS), Distribution Licensees, Transmission Licensees including the STU, Intra State Open Access Users and Captive Generating Plants operating in parallel with transmission network shall have to follow the directions of the SLDC, for in the matter of scheduling and dispatch of power generation and drawl in the state. The roles and responsibilities of Intra State Generating Stations/ Distribution Licensees & Open Access users shall be similar to Inter State Generating Stations (ISGS) and beneficiaries as provided in the IEGC specified by CERC from time to time.

36. The SLDCs/STUs shall regularly carry out the necessary exercises regarding short-term demand estimation for their respective States, to enable them to plan in advance as to how they would meet their consumers' load without overdrawing from the grid.

PART F: MISCELLANEOUS

37. Dispute

37.1. In the event of any dispute, regarding interpretation of any provision of the State Grid Code or rules and procedures notified under the provisions of the State Grid Code, the matter will be decided by the Commission in pursuant to section 33 of the Act:

38. Compliance

38.1. State Transmission Utility shall be responsible for monitoring the compliance of the Users and Transmission System Licensees with the provisions, contained in PART B, PART C and PART F of these Regulations and with the rules and procedures developed under such provisions:

Provided that the State Transmission Utility shall not unduly discriminate against or unduly prefer any User or Transmission Licensee.

38.2. State Load Despatch Centre shall be responsible for monitoring the compliance of the Users and Transmission System Licensees with the provisions contained in PART D and PART E of these Regulations and with the rules and procedures developed under such provisions:

The State Load Despatch Centre shall exercise such powers , supervision & control as conferred on it vide section 33 of the Electricity Act, required for ensuring the integrated grid operations and for achieving the maximum economy and efficiency in the operation of power system in the state,

Provided that the State Load Despatch Centre shall not unduly discriminate against or unduly prefer any User or Transmission Licensee.

38.3. In case of persistent non-compliance with the provisions of State Grid Code and/or with the rule and procedures developed under such provisions, such matter shall be reported to the Commission.

38.4. All directions issued by the Southern Region Load Despatch Centre to any Transmission Licensee or any other Licensee of the State or generating company (other than those connected to inter State transmission system) or sub-station in the State shall be issued through the State Load Despatch Centre and the State Load Despatch Centre shall ensure that such directions are duly complied with the licensee or generating company or sub-station.

38.5. State Load Despatch Centre may give such directions and exercise such supervision and control as may be required for ensuring the integrated grid operations and for achieving the maximum economy and efficiency in the operation of power system.

38.6. Every Transmission Licensee and User connected with the operation of the power system shall comply with the direction issued by the State Load Despatch Centre under clause 38.5 of these Regulations.

38.7. If any dispute arises with reference to the quality of electricity or safe, secure and integrated operation of the State grid or in relation to any direction given under clause 38.5.5 of these Regulations, it shall be referred to the Commission for decision:

Provided that pending the decision of the Commission, the direction of the State Load Despatch Centre shall be complied with by the transmission licensee or User.

38.8. Consistent failure to comply with the provisions of the Grid Code or with the rule and procedures developed under such provisions, by User or Transmission Licensee, may lead to disconnection of the Plant and/or Apparatus of such User or Transmission Licensee.

38.9. Nothing contained in Clause 36 of these Regulations shall in any manner impact the powers conferred upon the Commission to monitor and enforce compliance of the Users and Transmission System Licensees with the provisions of State Grid Code and with the rules and procedures developed under such provisions.

39. Power to amend

The Commission may, at anytime, vary, alter, modify or amend any provisions of these Regulations.

40. Power to remove difficulties

If any difficulty arises in giving effect to the provisions of these Regulations, the Commission may, by general or specific order, make such provisions not inconsistent with the provisions of the Act, as may appear to be necessary for removing the difficulty.

M. RAVINDRA SAI,
Secretary,
APERC

Hyderabad,
Dated 27-08-2010.

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